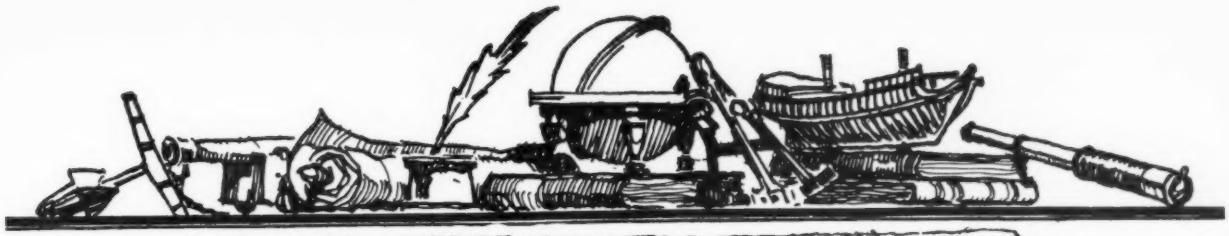

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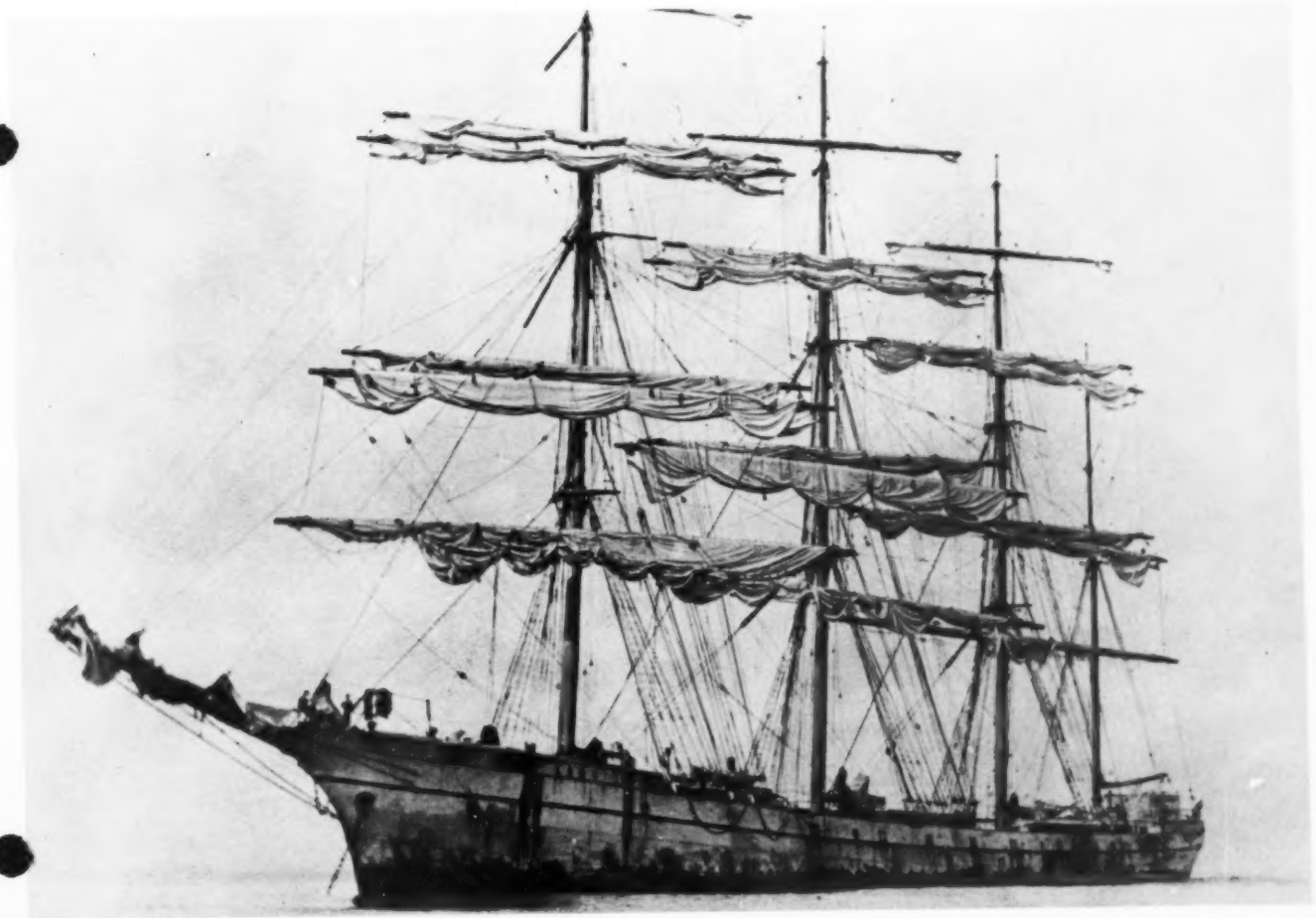
STANDARD OIL SAILING SHIPS



ACME at Montevideo, 1912. She put in with her coal cargo heated during her last Cape Horn passage from Baltimore for Seattle.....

AMERICAN OIL SHIPS - - ASTRAL, ACME and ATLAS
Part I

By Frank M. Thober

During the years 1900 to 1902, Arthur Sewall & Co. of Bath, Maine, launched three steel sailing vessels for the Standard Oil Company. These were the ASTRAL, ACME and ATLAS, which, with their sister ship, the WILLIAM P. FRYE, were the last deepwater square-rigged ships built in the United States.* They were designed for carrying case oil from eastern United States ports to the Orient, and continued in this service for about ten years, after which they were sold to the Alaska Packers Association.

ATLAS showing her after she had been sold to the Alaska Packers Association and renamed STAR OF LAPLAND.

One of the reasons for writing this account of these ships is to restore them to their proper place in the history of deep-water sail transport. Many other writers have mentioned them, but almost without exception these accounts are incomplete and misleading, especially about the vessels' service in the case oil trade. Most of these are little more than a telling and retelling of a few well-known incidents that fail to give a true picture of the ships or their performances. There does not appear to have been published anything that approaches being a full record of their passages. As a result, the idea has been widely accepted that they were little better than floating oil warehouses, too slow to get out of their own way, and not worthy of comparison with the wooden Down Easters that preceded them or the contemporary steel ships built abroad, especially in Germany. It is hoped that a full account of their service as cargo carriers will show that they were actually first rate ships, capable of performances as good as those of almost any of their contemoraries.

*(Except the barkentines built during and shortly after World War I. It is questionable if these should be counted as "deep-water square riggers".)

This article is in five parts: the first includes some information about the case oil trade, a description of the ships, and data on their sailing performances; the next three will be detailed accounts of their careers up to the time they were sold by the Standard Oil Company; and the last a summary of all their passages and a comparison of these with those of other vessels.

The Case Oil Trade

Petroleum has been known for many centuries, but before 1859 it had little practical value. Small quantities were skimmed off the surface of ponds and streams, or squeezed out of oily sand and shale, and used for medicinal purposes, and in rare instances, for lighting. But in 1859, with the drilling of the first oil well at what is now Titusville, Pennsylvania, petroleum became available in quantities large enough to be commercially important. Prior to the development of the internal combustion engine, most of the world's production was used in the form of kerosene for lighting. It soon proved far cheaper and more satisfactory than the animal and vegetable oils previously used for this purpose, and within a few years was taking their place,not only in this country, but all over the world.

The widespread use of kerosene was one of the principal causes of the decline of the whale fisheries in the last half on the nineteenth century. But at the same time that petroleum was helping to destroy the whaling industry, it was providing cargo carrying sailing ships with a new and important occupation, the transportation of oil from the United States,where most of it was produced,to other parts of the world.

A considerable portion of the oil exported from the United States went half way around the world to China, Japan, India, the East Indies, Australia and other Far Eastern countries. This was known as "case Oil" because it was packed in wooden cases, each containing two metal cans of three or five gallon capacity. This method was used because of the lack of facilities for transporting and storing oil in bulk in the Orient. The case oil trade with the Orient began around 1870 and grew rapidly. By the early 1890's, three to four million barrels of oil were being exported annually to Asia and Oceania. The trade reached its peak in the years just before World War I, by which time exports had risen to about seven million barrels a year. Then it began to decline, due to the growing use of gas and electricy for lighting, and today kerosene is one of the less important petroleum products.

Large sailing ships were well suited to this trade. The volume was large and there was no necessity for speed: oil cargoes are not perishable, and the oil companies were more interested in low cost than in high speed. It made little difference whether a cargo of oil arrived at its destination in four months or six months. At first, ships of all kinds and sizes carried case oil, but by 1900, ships of 2000

tons and over had taken over most of the trade. These included twenty-five big steel vessels purchased by or built for the Standard Oil Company which controlled this trade, or its British subsidiary, the Anglo-American Oil Company. In addition there were many other vessels chartered by the oil companies - British and American steel ships, German vessels, French bounty ships, American and Bluenose wooden ships and a few Dutch, Italian and Scandinavian vessels.

The breaking up of the Standard Oil trust in 1912 marks the end of large scale participation of sailing vessels in the case oil trade. Most of the remaining Standard Oil sailers were sold about that time, and steam tankers took over the carrying of oil, although sailing ships were used to some extent for another ten or twelve years.

Far Eastern Passages and Weather

Until 1900, practically all the kerosene exported from the United States was produced in Pennsylvania and shipped from East Coast ports. After that date, new oil fields in California, Texas and Oklahoma gradually took the lead in petroleum production, but as long as sailing vessels were engaged in the case oil trade, 90% or more of the exports were from the East Coast, mainly New York and Philadelphia.

The three Standard Oil ships made a total of thirteen oil passages to the Far East: ten from New York, three from Philadelphia; nine to Japan, four to China, in addition there was one passage with coal from Baltimore to Manila. To evaluate the performance of sailing vessels in this trade an understanding of the weather conditions is necessary. There were few important sailing routes where seasonable variation in the winds had such a profound effect on the length of passages. During the early years of the twentieth century, ships leaving eastern United States ports for Japan during the months from May to November averaged about 135 days. Similar differences are found in passages to other far Eastern countries.

The principal cause of these variations was the monsoon winds of the China Sea and the Indian Ocean. From October to April these winds blow from the northeast with the strength and steadiness of a trade wind; from May to September they blow mainly from the southwest, but are much lighter and less steady than the northeast monsoon. The monsoons made it necessary for ships bound to the East to follow two different routes, depending on the season. Those that expected to arrive during the summer would, after rounding the Cape of Good Hope, head for the Straits of Sunda between Java and Sumatra, then northward through Gaspar Straits into the South China Sea, and could reasonably expect a fair wind from there to their destination.

But if a vessel were to reach the Straits of Sunda during the winter, she would have ahead of her from a hew hundred to four thousand miles of sailing right into the teeth of the northeast monsoon. The tea clippers of the 50s and 60s could make good a hundred miles or more per day under these conditions, but the deeply laden, full bodied oil carriers of the twentieth century could not equal these performances and their passages would have stretched out almost endlessly had they tried to go that way. Instead, when bound for China or Japan, they usually followed the longer distance, but shorter in time, route south and east of Australia, approaching their destination from a southeasterly direction with the monsoon on the starboard beam. This was one of the longest of all sailing passages, frequently running to over 20,000 miles. It was not often made in under 140 days, and passages of six months and more were fairly common.

When homeward bound, conditions were reversed, and the southwest monsoon was a head wind. Some vessels, to avoid the difficult beat against the monsoon, sailed all the way across the Pacific and around Cape Horn. This did not always save time; in 1903 the JUTEOPOLIS sailed from Iloilo for New York and turned up at Honolulu 129 days later short of provisions and water. She eventually reached New York 287 days out. Most captains preferred to take a chance on the rather variable southwest monsoon. Sometimes they were lucky, but not always. It was not unusual for ships to pass Anjer on the Straits of Sunda homeward bound, 60 days or more out from Japan, China or even the Philippines.

Other Passages

While owned by the Standard Oil Company, the ASTRAL, ACME and ATLAS made a total of 67 passages, exclusive of short coastwise runs. Of these, 24 were outward from North Atlantic ports, 14 to the Far East, 9 to the West Coast of the United States, and one to the Hawaiian Islands. Twenty-one were homeward passages, 5 from the Far East and 8 each from the West Coast and the Hawaiian Islands. In addition, they made 16 trans-Pacific runs, one tran-Atlantic, and five between Far Eastern ports. All except one of the passages to the Far East were completed before the end of 1907. Standard Oil kept their British flag ships in the oil trade until about 1912, but evidently found the protected intercoastal trade more profitable for their American ships.

Description of the Standard Oil Ships

Arthur Sewall & Company of Bath, Maine, were the only shipbuilders in the United States to build large steel square-riggers. Altogether they turned out nine such vessels. One of these was the KAIULANI, a bark that spent most of her life in the Pacific. The others were four masters of about 3000 tons or more, five owned by their builders and three by the Standard Oil Company.

The eight four masters were similar to each other, although some changes were made from ship to ship. In general they may be divided into three groups:

1. The DIRIGO and ERSKINE M PHELPS, which were about 310' long, 3000 gross tons, and were rigged with single topgallant sails and three skysails.

2. The ARTHUR SEWALL, EDWARD SEWALL, ASTRAL and ACME, which were some 20' longer, 200-300 gross tons larger, and rigged with double topgallant sails and royals.

3. The last two, WILLIAM P. FRYE and ATLAS had the same hull and sail plan as the previous four, but their tonnage was increased by about 100 gross tons by the addition of a large bridge deck amidships.

In lines, dimensions, layout and, except for the first two, sail plan, these vessels bore a much closer resemblance to the British four masters of the 90s and early 1900s than to the American wooden vessels that preceded them. As the three Standard Oil vessels were so much alike, it will suffice to give a description of the ASTRAL with a brief mention of the ways in which her two sisters differed from her.

ASTRAL'S registered dimensions were 332.3 x 45.4 x 26.0, gross tonnage 3292, net tonnage 2987. Her hull was designed for carrying capacity rather than speed. Her midship section was almost rectangular, with little deadrise and hard bilges. Her bow and stern lines were fairly full. Viewed from alongside, her appearance was one of power rather than grace, with moderate sheer, short overhang at the ends and little rake to the masts. Her hull was devoid of all ornaments, the stem curving up under the bowsprit in a circular arc, without so much as a fiddle head to finish it off; the stern containing no more than her name and port. She was painted white with a black stripe about the level of the main deck.

On deck she had a raised forecastle extending almost to the foremast. Abaft the foremast was a large deck house with two boats on skids just aft of the fore rigging. Abaft the mainmast was a second deck house, somewhat smaller than the other, with the standard compass on top. Aft was a poop deck extending to a few feet forward of the jiggermast. On this was the wheelhouse, the charthouse and the cabin skylights. Forward of the break of the poop were two more boats on skids, with davits. The tops of the super-structures were connected by a light slying bridge a few feet off center to starboard. She had a donkey engine in the forward house

that was used for handling anchors, loading and discharging cargo, and sail handling when entering and leaving port. It does not appear to have been used much at sea. There were no such labor saving devices as brace or halyard winches or steam pumps.

She was rigged as what is commonly called a four masted bark, although most contemporary records and reports refer to her and Sewell's other four masters, both wood and steel, as ships. Why this was done is now known, but it has resulted in some confusion. A letter recently from the editor of "Sea Breezes" goes so far as to give the dates when some of these American four masters were converted from ships to barks! Some prefer the name "Shipentine" for such vessels. This has the advantage of distinguishing between these vessels and what they call true four masted barks, with two square-rigged and two four-and-aft rigged masts, like the OLYMPIC. This name has never been generally accepted and is rarely used.

The ASTRAL's square-rigged masts were conventional, with double topsails and top-gallantsails and royals. Her lower and topmasts were of steel, in one piece and her topgallant masts of wood. Her rig was exceptionally square with lower yards 96' long, royal yards 57'6", and mainmast 163'6" from deck to truck. She had a steel spike bowsprit 45' outboard. All her standing rigging was unusual. She had only five lower shrouds and two topmast shrouds on each side of each square-rigged mast, instead of the six and three carried by most large vessels. The lower shrouds were not evenly spaced, as was customary. The forward one in each set was in line with the center of the lower mast, the second about 18 inches abaft it and the other three spaced at intervals of about four feet. Her jiggermast was somewhat unusual; it looked like a square-rigged mast with the yards removed. It had a steel lower and topmast in one piece almost as long as the corresponding square-rigged masts, and a short wooden topgallant mast. She carried a standing gaff joined to the mast above the top, about where the lower topsail yard would have been had she had one. Between the gaff and the boom she carried a triangular spanker with a ringtail set above it from the gaff to the end of the spanker boom. This same type of jiggermast had also been used on all the steel four masters previously built by Sewall.

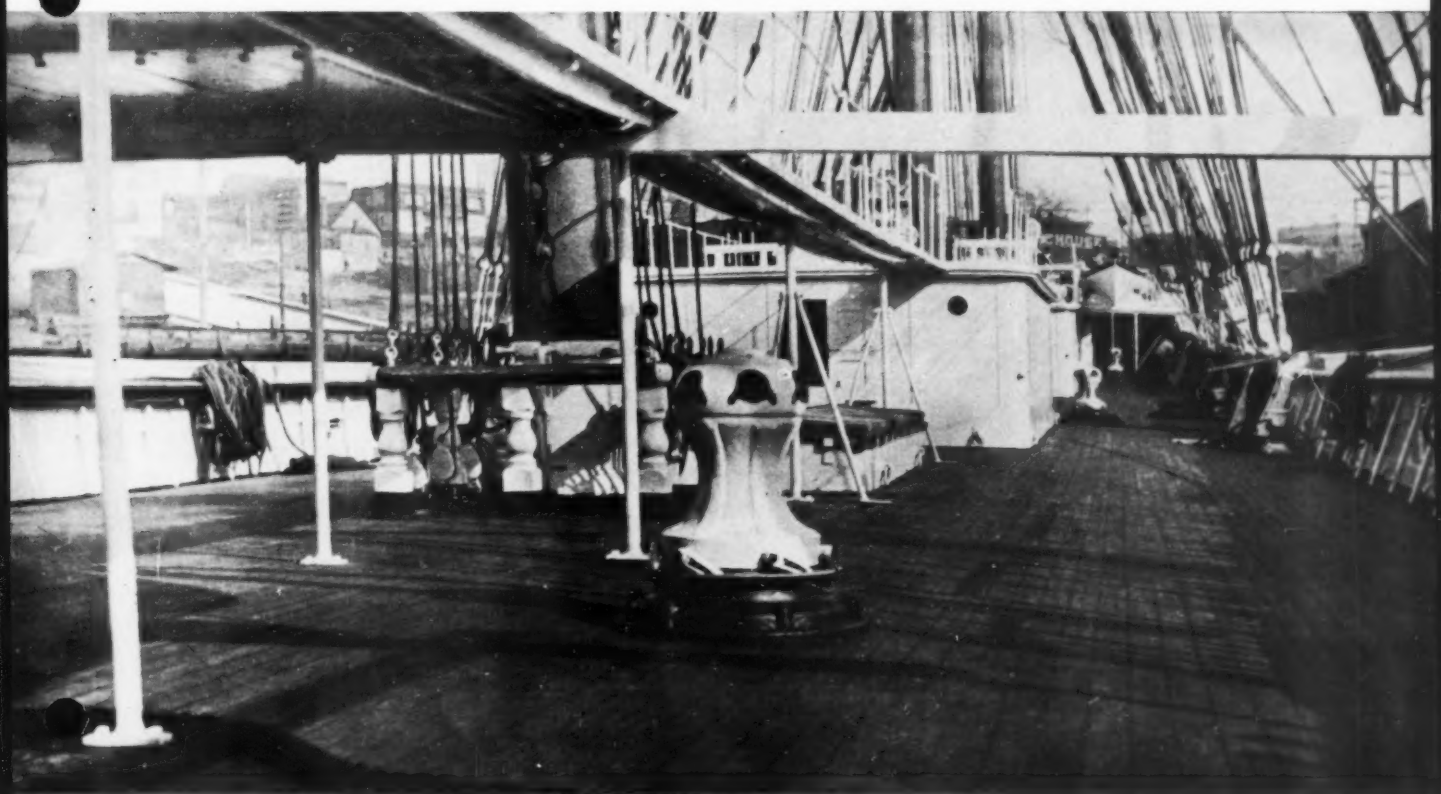
The following table gives the lengths of the principal spars:

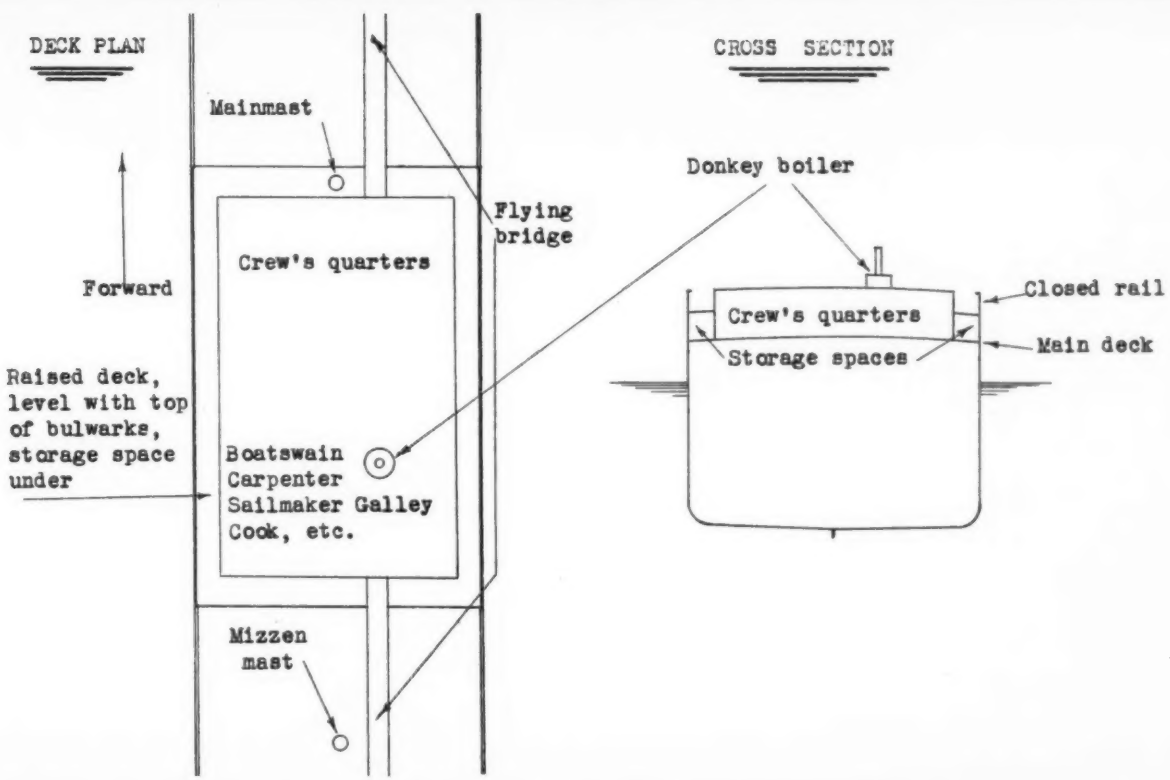
	ALL Three Ships			ASTRAL	ACME ATLAS
	Fore	Main	Mizzen	Jigger	Jigger
Lower and topmasts					
Deck to top	52	55	55	56	72-10
Top to crosstrees	42-6	42-6	42-6	35	--
Crosstrees to cap	13	13	13	9	9-6
Total	107-6	110-6	110-6	100	82-4
Topgallant masts					
Topgallant	37	37	37	30	48-2*
Royal	22	22	22	17	--
Pole	7	7	7	5	7-8
Total	66	66	66	52	55-10
Total height, deck to truck	160-6	163-6	163-6	143	128-8

* Topmast. ACME and ATLAS had their jiggermasts about 3-1/2 feet farther forward than ASTRAL.

DECK VIEW OF "ACME"

Starboard side looking forward from below after boat skids. Photographed at Bath, Me., 1912





ASTRAL

Photograph believed to have been taken at Philadelphia in 1904 just prior to sailing for Hiogo. Note the rig of the jigger mast.

Yards					
Lower	96	96	96		
Lower topsail	88-6	88-6	88-6		
Upper topsail	79-6	79-6	79-6		
Lower topgallant	75	75	75		
Upper topgallant	67-6	67-6	67-6		
Royal	57-6	57-6	57-6		
Spanker boom				50	58
Spanker gaff				37	37
Bowsprit	45 outboard				

* * * * * * * * * * *

The ACME was almost identical with the ASTRAL, the only important difference being in her jigger mast. This was a more conventional type with a long lowermast and a rather short fidded topmast. A standing gaff was carried below the top and a spanker and ringtail similar to ASTRAL's. None of these ships seem to have made much use of the sails on their jigger masts; photographs of them with all square sails set usually show no more than a small triangular spanker and a staysail or two on the jigger. The spanker gaff, when it was not removed altogether, was used mainly for the ensign and signal flags. This seems to have been due to their sail plans being not well balanced. According to a former officer of the ACME, she steered well with full sail on the jigger mast only when trimmed by the stern. In light weather, Captain McKay rigged a spare jib or staysail as a stunsail from the fore upper topsail yard to a boon rigged out from the rail. This was for balance more than for extra driving power.

The ATLAS was the same as the ACME aloft. On deck however, she, like the WILLIAM P. FRYE, differed from Sewall's other ships in having a 68 foot long bridge deck starting just forward of the mainmast and a smaller forward house. This bridge deck was of an unusual design. It consisted of a large deck house extending to within a few feet of the side of the ship with the space between it and the side of the ship decked over on a level with the top of the bulwarks. This deck was also extended a short distance forward and aft of the house. The arrangement resembled the quarter deck and trunk cabin frequently used on wooden vessels. The space between the sides of the house and the bulwarks was used for storage of coal and other supplies. The sketch on page 7 illustrates the arrangement of this bridge deck.

The ships were strongly built and well kept. Their photographs invariably show them looking neat and trim. Apparently the Standard Oil Company did not stint on the upkeep of their ships. Their records show they were strong and able. During a total service of about thirty years under Standard Oil's ownership, including twenty-six roundings of Cape Horn and nineteen of the Cape of Good Hope, there is no record of their losing any spars below the topgallant masts, nor of any major damage to their hulls except as a result of grounding or collision. They had their share of encounters with storms, reefs, fire, and other ships, but almost always managed to arrive safely and deliver their cargoes in good condition. On only one occasion did one of them put into a part other than her destination because of heavy weather damage. This was in 1908 when the ASTRAL sailed from Baltimore for San Francisco and was towed into New York two weeks later, after losing her topgallant masts in a hurricane.

There seems to be little or no basis of fact for the often repeated story that the topgallant doublings of these ships were too short, resulting in frequent loss of their topgallant masts. Their doublings were thirteen feet long, at least as long as those on other vessels of comparable size. The ASTRAL lost her topgallant mast three times, but the only records found of the loss of these spars by either of the other ships were in 1907 when the ACME was forced to cut away hers when her

ballast shifted and she was thrown on her beam ends, and in 1908 when she lost her fore topgallant mast according to one report, or her fore royal mast according to another.

Sailing Performances

Although Sewall's four masters were so much alike, there were wide differences in their performances. Some of these can probably be attributed to the weather they encountered, but the ability of their masters must have had a lot to do with it. An analysis of their passages shows that the ATLAS and ACME under McKay and the ERSKINE M. PHELPS under Graham consistently made far quicker passages than any of the others.

The Standard Oil ships had the reputation of being very slow sailers, but this seems to have been based on a few long passages, notably ACME's maiden passage of over 200 hundred days to Yokohama. Actually, if all their passages are taken into account, they show up as considerably better sailers than the general run of ships of their class. Generally they did as well or better than other ships going over the same routes at about the same time.

Some of their slowest runs:

ASTRAL	Sourabaya to Delaware breakwater	168 days	*
	Philadelphia to Hiogo	175	*
	New York to San Francisco	159	
ACME	New York to Yokohama	204	*
	New York to Yokohama	155	
	Tacoma to New York	153	
ATLAS	San Francisco to New York	159	
	Manila to New York	166	*

On the other hand, some passages were exceptionally good:

ASTRAL	San Francisco to New York	123	
	Cape Henry to Honolulu	125	
	San Francisco to New York	122	
ACME	Philadelphia to Hiogo	145	*
	Hong Kong to Baltimore	113	
	Honolulu to Phildelphia	112	
	Delaware Breakwater to Hakodate	142	*
	Astoria to New York	111	
	Phildelphia to San Diego	127	
ATLAS	New York to Hong Kong	111	
	Hong Kong to Baltimore	94	
	New York to Yokohama	113	
	Shaghai to San Francisco	35	
	Kahului to Phildelphia	108	
	New York to Yokohama	143	*

* Unfavorable monsoon

On ATLAS' s 94 day run from Hong Kong to Baltimore, she was only 69 days from Anjer to her landfall near Cape Charles, a performance that was rarely beaten even by the Tea Clippers. If some of these better passages are not quite the equal of those made by clipper ships, it must be remembered that conditions had changed in the fifty years prior to 1900. These passages were made by large ships manned by small crews,and excepting the trans-Pacific runs, deeply laden. At the time, most passages to or from the Far East or the West Coast of North America took 150 days or more.

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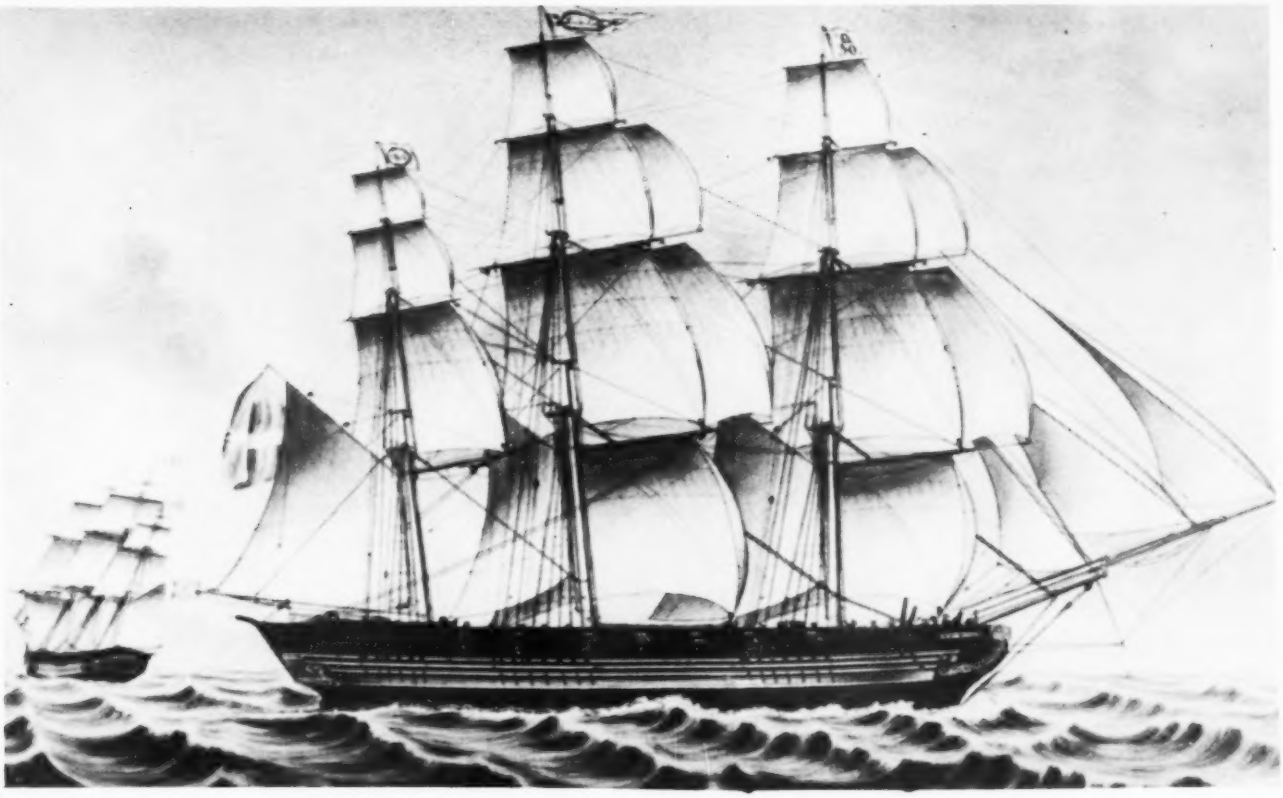
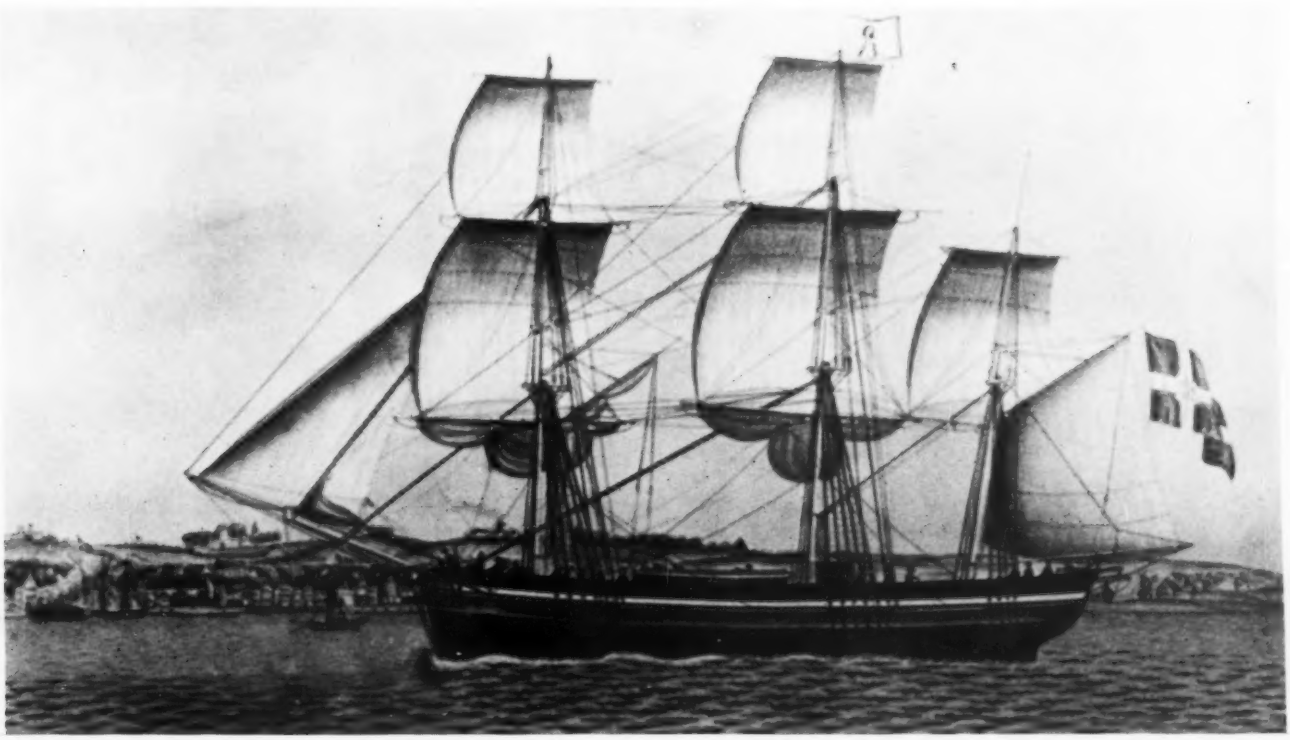


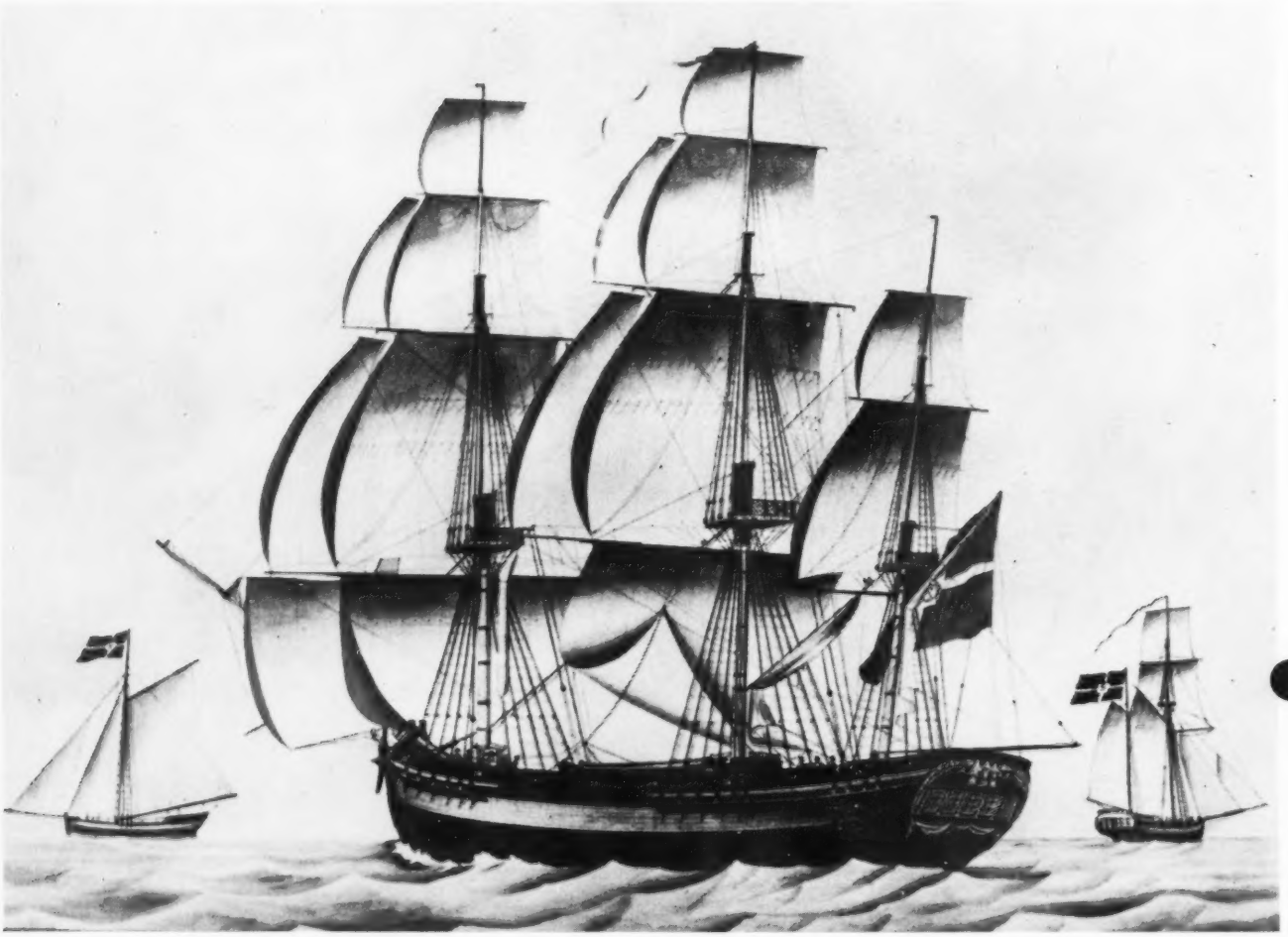
LOUISE SOPHIE in 1836 From the Karl Wede

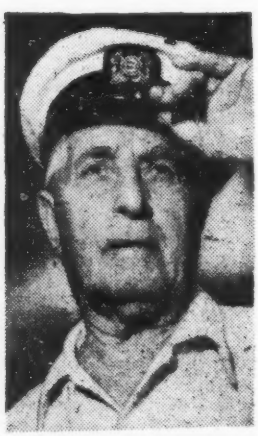


FRAYA of Flensburg, in 1833 Ship Print Collection

GRAZIEN

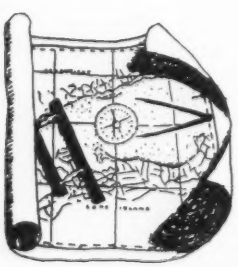
K. Wede
Collection





LEIGHTON ROBINSON

CAPTAIN



CLIFF SMITH

COMMODORE

FINAL TRIBUTE TO BELOVED SHIPMATES
By Commander James H. Willey

On Thursday, the 19th of January, Captain Leighton Robinson, President of the San Francisco Chapter of N.R.G., an authority on matters pertaining to the sea, a selfless worker for youth and a profound influence in the San Francisco Bay area, died at the age of 84 years at his home "Melanope" in Mill Valley.

The Captain was born in Helston, Cornwall, England and bred in Falmouth. At the age of 14, he became a cadet on H.M.S. CONWAY, training ship for the Royal Merchant Marine. He first rounded the Horn at the age of 17 on the CROWN OF DENMARK and at 21 served as Master of the iron bark DUNCRAG while the Captain and First Officer lay stricken with yellow jack.

Young Robinson first tried to remain in San Francisco (jump ship) back in 1888, but was unsuccessful. The next time he made this harbor, after many interim adventures, was on the ship BEN LEE and arrived a delirious victim of typhoid. After a successful recovery, he returned to sea and thereafter served mostly on either coastwise runs (CELTIC) or trans-Pacific voyages (COPTIC). During the early 1900's he accepted his only sailing command, the well known iron clipper MELANOPE. He and his wife sailed for Sydney, with a full cargo of lumber, on what later proved to be a record voyage of 44 days. His son, now a Colonel in the U. S. Army, was born "ashore" during the turnaround period.

Starting in 1905, he received an appointment of Deputy Shipping Commissioner for the Port of San Francisco - an undertaking that kept him pacing the docks of San Francisco instead of the quarterdeck of a ship. He was also one of the Elders of the San Francisco Yacht Club and was named Port Captain of the Club. He served in the latter capacity until his death. The Captain wrote profusely about the sea, talked ships and sailing to eager youngsters, took active part in sea scout training for boys and girls and was a singer of chanties - in fact - back in 1939, he recorded a whole series of sea chanties for the Library of Congress. His sloop WHITE FEATHER was often the scene of many an adventurous sail on the Bay waters with small fry guests and his efforts on behalf of California youth will long be remembered.

In 1949, Captin Robinson was instrumental in the formation of the San Francisco Chapter of the Nautical Research Guild. One of the first projects of this Chapter was to participate actively in the formation of a local nautical museum patterned after Mystic Seaport, Connecticut. His efforts and those of fellow members were most successful and the San Francisco Maritime Museum, under leadership of Director Karl Kortum, was established for the benefit of all who love the sea.

Final services for a much respected and old friend are never happy occasions, but in this one for our beloved "Cappy" an unusual air of calm and contentment was evident. Some tears were shed, but the hugh crowd that paid last respects seemed to sense that everything had been done as "Cappy" would have wanted it.

****

On the 29th of January, another valued member of the San Francisco Chapter - Commodore Clifford A. Smith - died in Franklin Hospital at the age of 67. The Commodore had a most colorful personality and was for many years a leading booster of yachting activities in Northern California. He originated the world famous "Star" class racer with his pioneer 22 foot sloop FRISCO STAR in 1921 and his last yacht LADY V was one of the first "R" boats on the Pacific Coast.

The Commodore, above all things, was gregarious and loved a good laugh or practical joke. He left no immediate relatives, but it would be in no way disrespectful to report he is survived by "Nellie" a wax dummy he pirated some 20 years ago from a local department store. Nellie - attired in latest fashions - attended many of his races as mascot.

This, then, was Commodore "Cliff", a true sportsman, who has just left us for that last cruise. No doubt the Guardian of the Gate will chuckle at his "running light" socks - red on the port foot and green to starboard. He will be sorely missed by all who knew and loved him.

DEVIS OF A LUGGER 66 DUTCH FEET LONG

Devis, Plans and Photographs Furnished by Heer E.W.Petrejus of the Maritime Museum Prins Hendrik in Rotterdam, Netherlands with permission to publich same in the Nautical Research Journal

Comments and Explanatory Notes by Mr. D.L.Dennis of St. Paul

Result of Calculations:

Displacement in cubic feet of the underbody between the stem and the longitudinal centre, including keel, plank, etc. ---		1063
Ditto shaft longitudinal centre		1796
Excess of fore body		67
Total displacement		36359
Which equals	131 3/4 tons	
Launching weight	61 1/4 tons	

Scantling

The hatch and partner beams to be sided 7 to 8 inches, the others 6 inches, all to be moulded 6 inches.

The pieces of the frame shall be sided 6 inches at the floor, 5 inches at the main breadth, and 4" at the covering board. The same to be moulded 7 to 8 inches at the floor-heads, 5 inches at the main breadth and 3½ at the covering board.

The wales 7 to 8 inches wide and 3 inches thick

The waterway 3 inches thick (see note "a")

The deck plank and that of the bottom 1 3/4 inches thick

Plank above wales 1 1/4 inches thick

The thick stuff at floor heads, 2½ inches. Foot-waling 1½ inches (see note "b")

Keelson - 9 inches deep by 14 inches wide (see note "c")

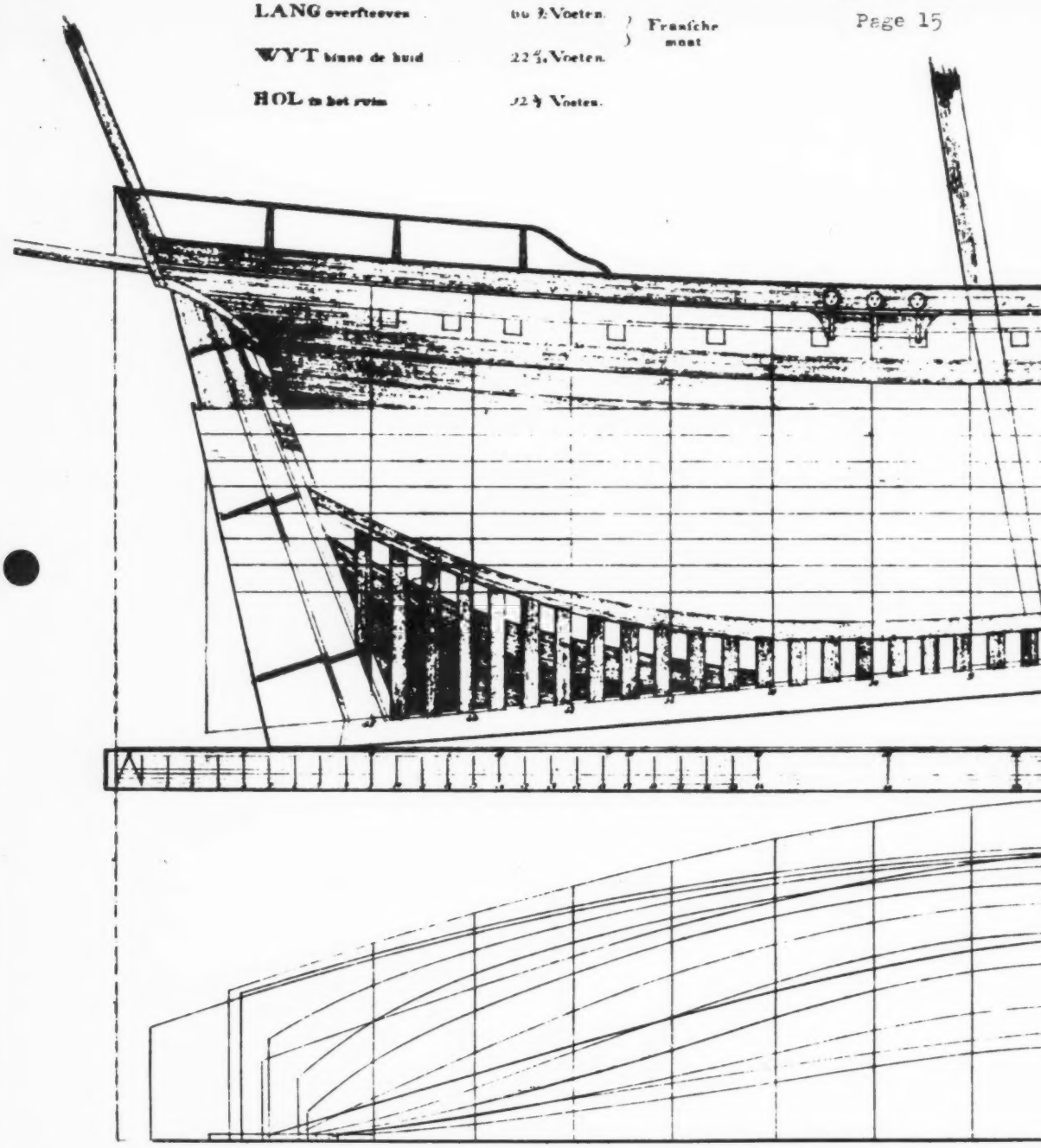
NOTE: The written dimensions of the thickness of the frames, beams, wales, etc. should be adhered to rather than those shown in Section A of the plans. In this one side, B, is shown clench built, and the other C, carvel built. The latter appears preferable on account of the ease and strength of the fastening of the copper and for greater speed.

Particular Dimensions

Height of bulwarks above deck	0 ft.	10 in.	6 s.
The same including topgallant bulwarks	1	8	0
Vertical distance, rabbet line to top of topgallant bulwarks at midship section	13	10	6
Draft aft	12	10	0
Draft forward	8	2	0
Difference in draft	4	8	0

AFTEEKENING van een LOGGER.

LANG overtteeven . . . 60 ½ Voeten. } Fransche maat
WYT binne de huid . . . 22 ¾ Voeten.
HOL in het ruim . . . 22 ½ Voeten.



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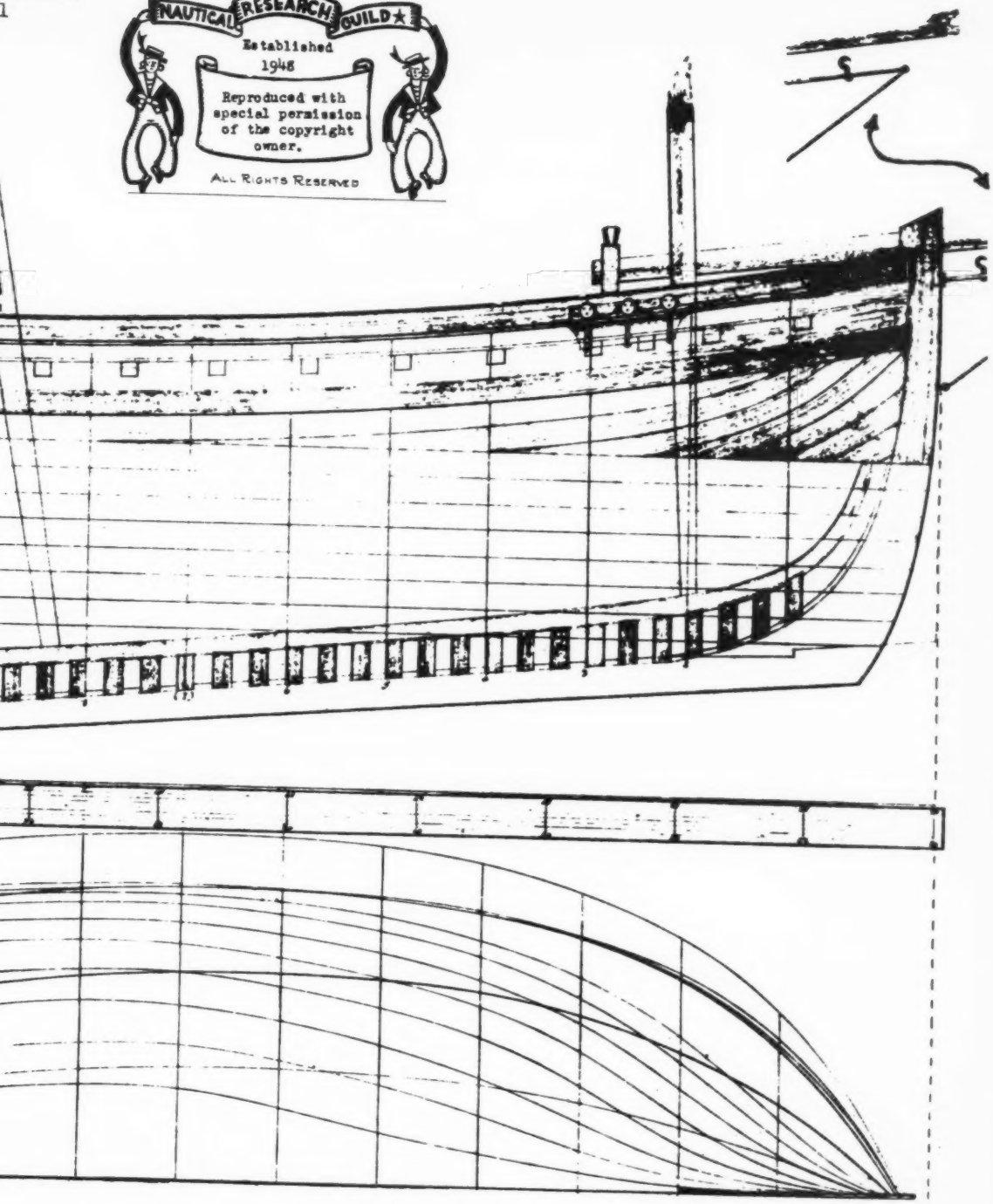

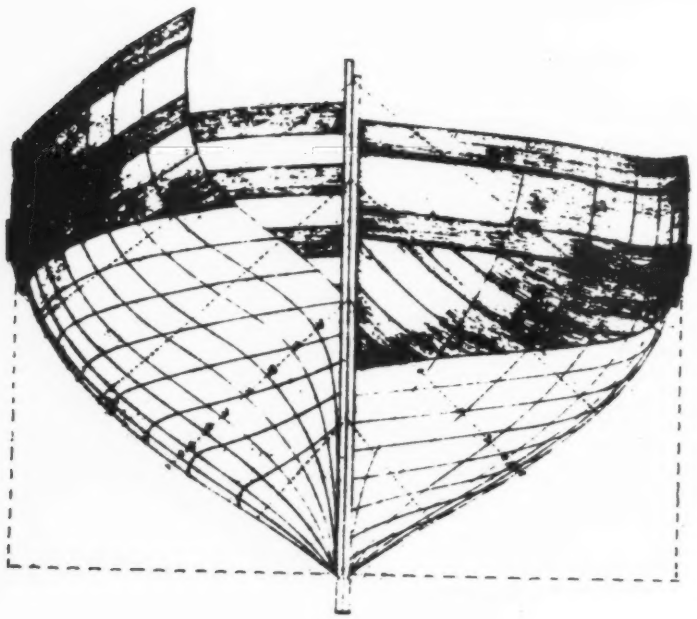

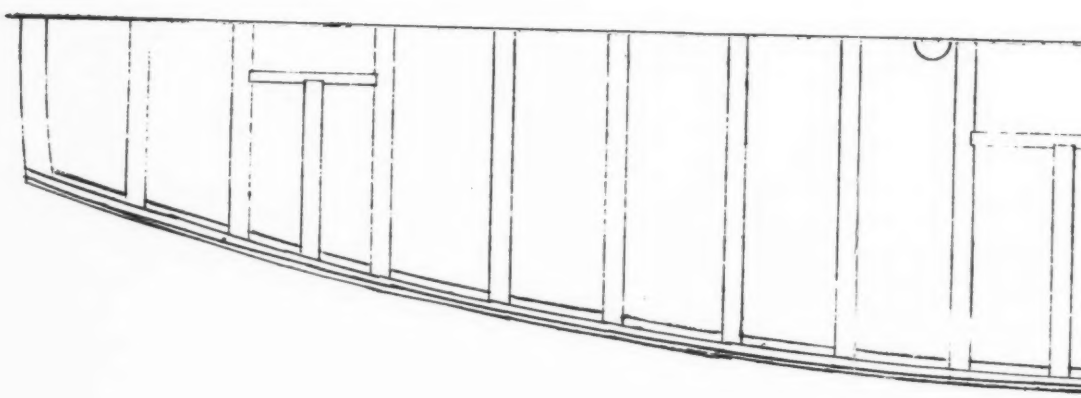

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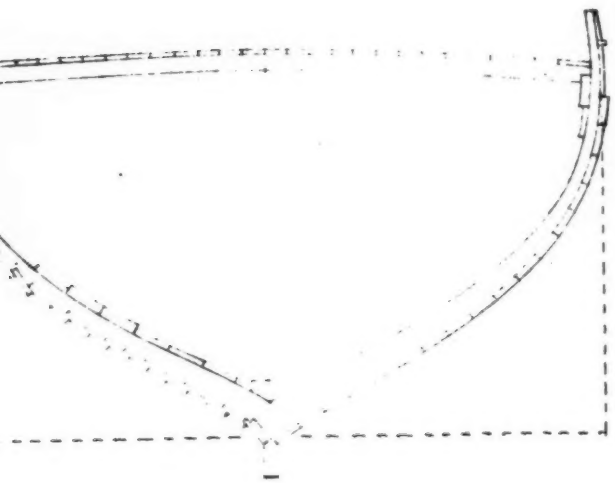
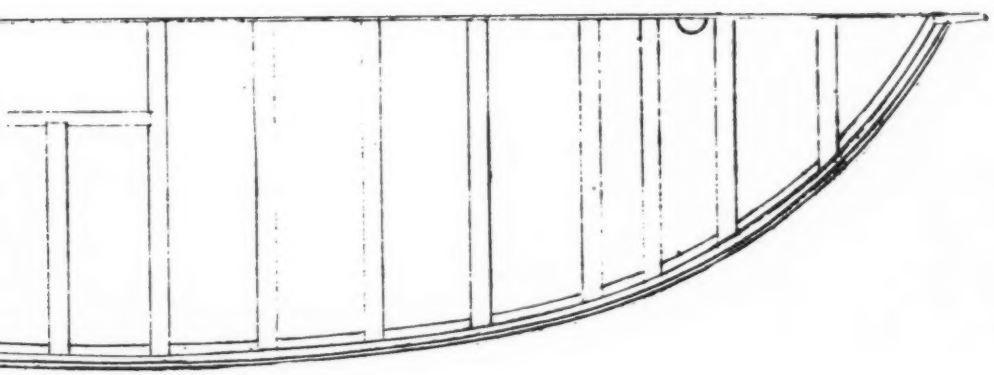




The length of the lugger has been made the 66 Dutch feet requested. It is to be observed that there are luggers 72 French feet long and that, for the same model, the larger and longer luggers are faster.

Spar Dimensions (see note "d")

Spar	Length Ft.	In.	Diameter In.	s.	Masthead or Pole Ft.	In.
Mainmast	74	8	14	0	5	11
Foremast	65	4	13	0	5	10
Mizzenmast	42	0	8	6	2	4
Bowsprit	53	8	13	6		
Maintopmast	29	2	6	6	2	4
Foretopmast	25	8	6	0	2	4
Mizzen bumpkin	36	2	8	3		
Fine weather mainyard	45	6	8	3		
Medium weather mainyard	37	4	8	3		
Fine weather foreyard	33	10	8	2		
Medium weather foreyard	29	2	8	2		
Main trysail gaff	22	2	5	11		
Fore trysail gaff	21	0	5	10		
Fine weather mizzen yard	29	2	7	0		
Medium weather mizzen yard	24	6	7	0		
Maintopsail yard	32	8	5	11		
Foretopsail yard	26	10	5	10		

Brest, December 30, 1782
(signed) GROIGNARD

Notes upon the Davis

The dimensions are in French feet. One French foot equals 0.32483938 metres (about 1.065 English feet) and is divided into twelve inches. An inch consists of 12 lines.

The term "lougre" which is here translated "lugger" was restricted to three masted vessels and generally to those intended for war or smuggling. Fishing or coasting luggers, even when rigged with three masts, were termed chasse-marees. The type had only been recently evolved in 1782. Evidently the Dutch authorities had requested the French for a design (they were allies toward the last of the American War for Independence) and M. Groignard was a constructor of the Royal French Navy.

Note: (a) The French term is serre de pont. This was an infrequent term and have only heard it applied to the ceiling in the 'tween decks or on the bulwarks. It cannot mean this here and am of the opinion it must mean the waterway, although the usual Brest term for this was 'fourrure de Goutiere'.

(b) $2\frac{1}{2}$ inches in original - evidently an error.

(c) The width of keelson probably diminished toward ends.

(d) When it was a question of an unbuilt ship, the French generally measured the length of the lower masts from the top of the keel, hence the given length was greater than the actual.

Generally when blowing fresh, a lugger replaced its dipping lug mainsail by a smaller standing lug called a 'taillevent' on account of the difficulty (and consequent danger) of hauling down a dipping lug if taken aback. Since ordinarily the foretack boarded to the stem head and did not project much beyond the mast, there was frequently no taillevent on the fore. In the present case where the fine weather foretack boards to a long iron bumpkin, perhaps both the fore and main medium weather sails wore dipping lugs. As far as is known, the mizzen was ALWAYS a standing lug.

Remarks on Plans

The Dutch plan is apparently a copy of the French. If a contemporary copy, it is an extremely early instance of the use of deadeyes for setting up the fore and main shrouds of a lugger. Ordinarily, I should be inclined to state that in 1782 these shrouds were a 'bastaque'- that is each one consisted of a pendant, a runner and a tackle. M. Forfait (1788) says there were no channels, that the shrouds set up to eye bolts in the wales. If this were universally true in 1788, ten or fifteen years later channels were usual. I think a model builder solicitous for historical accuracy would be prudent to avoid deadeyes at the fore and the main.

The manner of working the plank beneath the wales shown on the Dutch plan is typically Dutch and would probably not appear on a French or English vessel. The Dutch plan shows no taopgallant rail. The French term (fargue) that was translated as 'topgallant bulwakrs' suggests this absence, and the appearance of a topgallant rail shown in both the French and Dutch sheer plans may be a moulding. The expression 'fargue' is perhaps ill rendered by topgallant bulwarks. In open boats, it meant wash boards; in the Mediterranean - in decked vessels - it meant a vertical extension of the bulwarks above the gunwale, sometimes removeable, sometimes permanent, but never so far as is known, with a cap rail. It is probable that this lugger had broadside guns, and if so, they could hardly have been over four pounders. No embrasures have been shown, but it is possible that sections of the fargue may have been removable to form embrasures.

The inscription in the lower left hand corner of the French plan - translated:

Principal Dimensions	(Dutch Units)
Length out to out stem to sternpost	66' - 0"
Moulded breadth	22' 6"
Rake of stem	3' 0"
Rake of sternpost	5' 8"
Length on keel	57' 4"
Depth, top of keel to bottom of beam	12' 0"

Inscription on the Dutch plan:

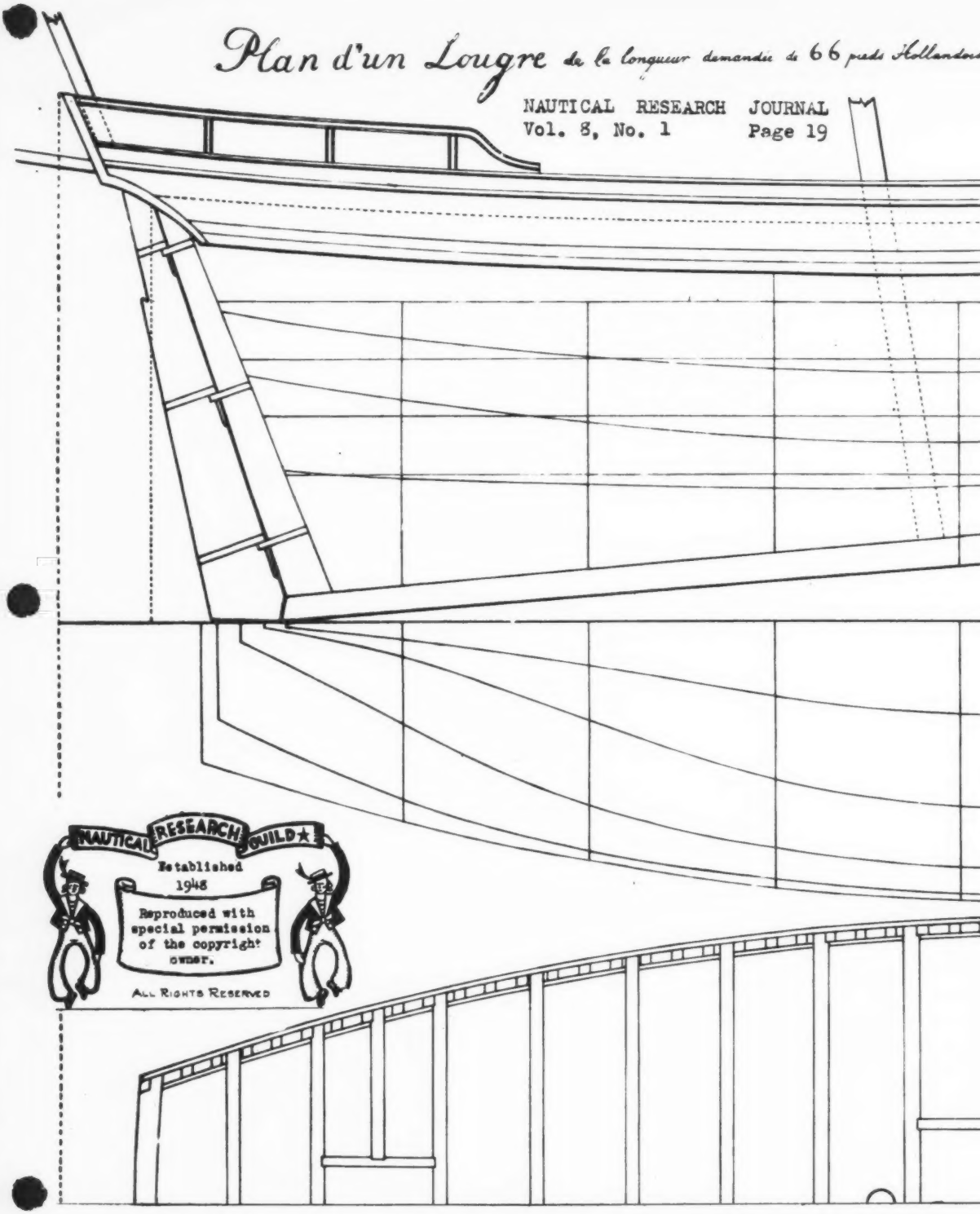
Plan of a Lugger	(French measurements)
Length out to out to sternpost	66' 7"
Moulded breadth	22' 5½"
Depth of hold	12' 4½"

I believe one can conclude that despite the statement about 66 Dutch feet, that ALL the dimensions of the devis and those given on the French plan were in French feet. All these dimensions that can be checked by scaling off the graph (using graphic scale on the drawing) agree perfectly. Also if one multiplies the given weight of displacement by 2000 and divides by the given colume displacement, one obtains 72, and 73 livres - a value widely used by contemporary French designers for the weight of a cubic foot of sea water. The Dutch could substitute Dutch feet for French feet throughout and obtain a geometrically similar vessel, but it would be somewhat smaller. Although apparently the same vessel, it might be noted that the dimensions of the Dutch plan are not quite similar.

The model, photographs of which are here subjoined, is not a product of the plans. The model was presented to the Maritime Museum in 1858 and nothing is known of its previous history nor what vessel it might represent. Judging from details of the rigging shown, it represents a vessel of not earlier than 1820.

0-0-0-0-0

Plan d'un Lougre de la longueur demandée de 66 pieds Hollandois



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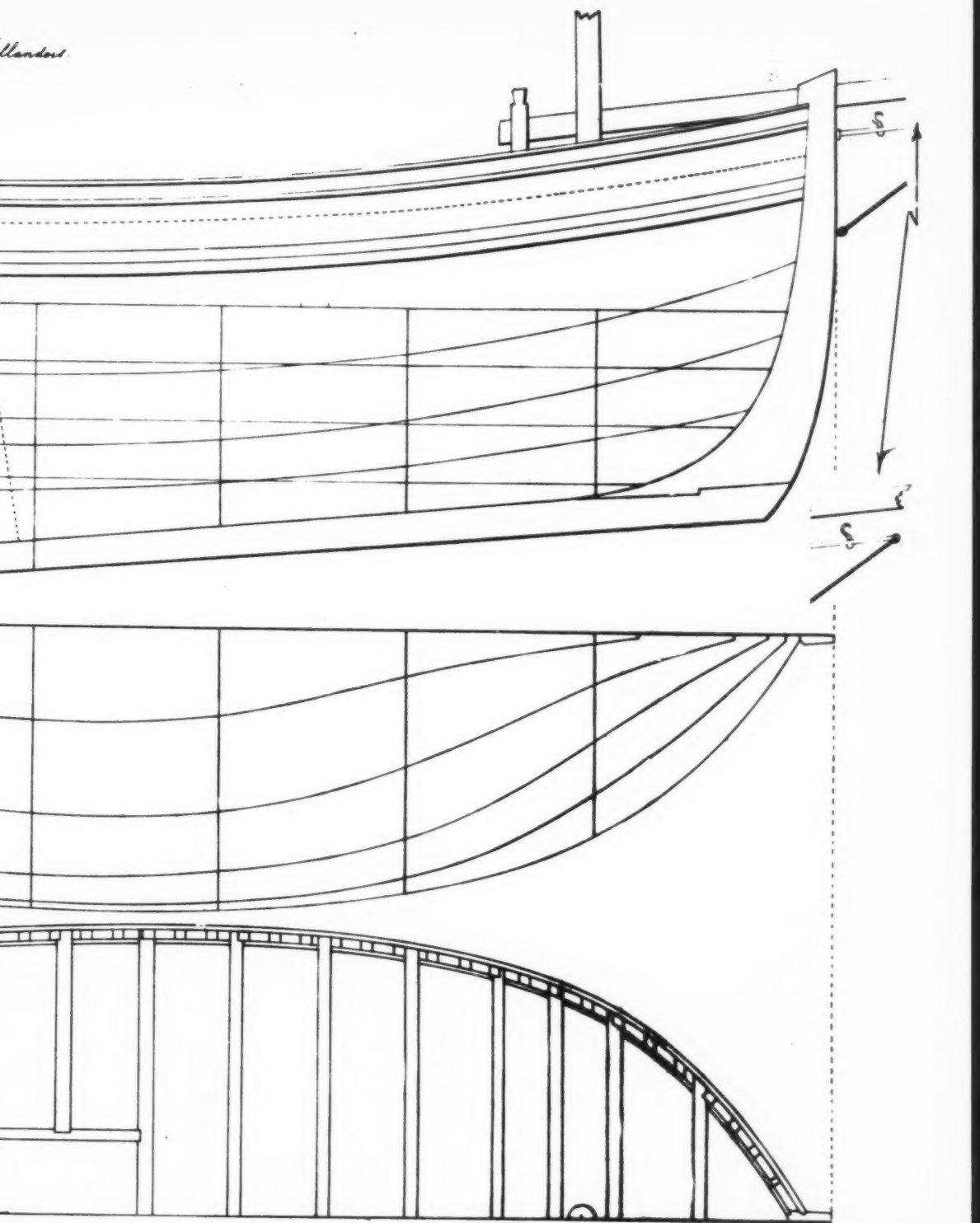


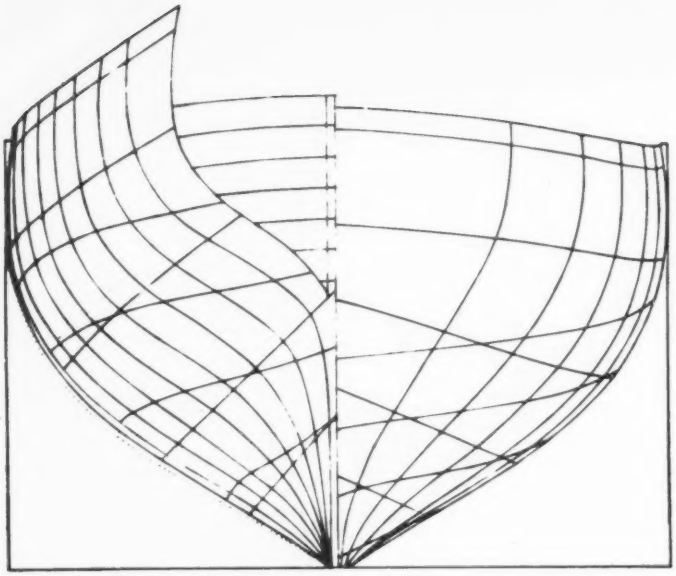
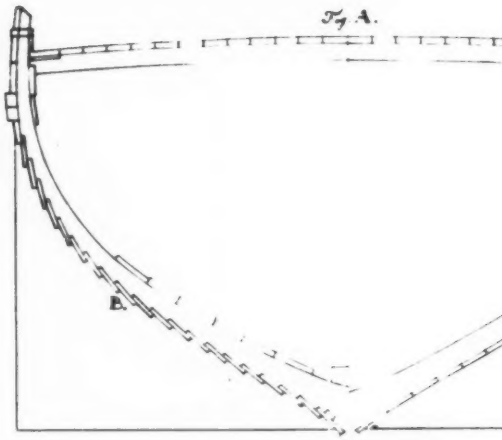


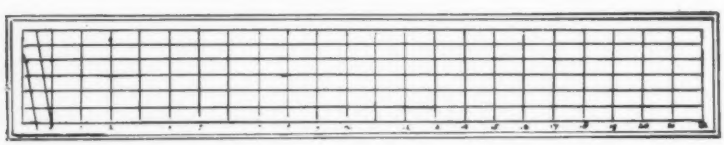
Fig. A.

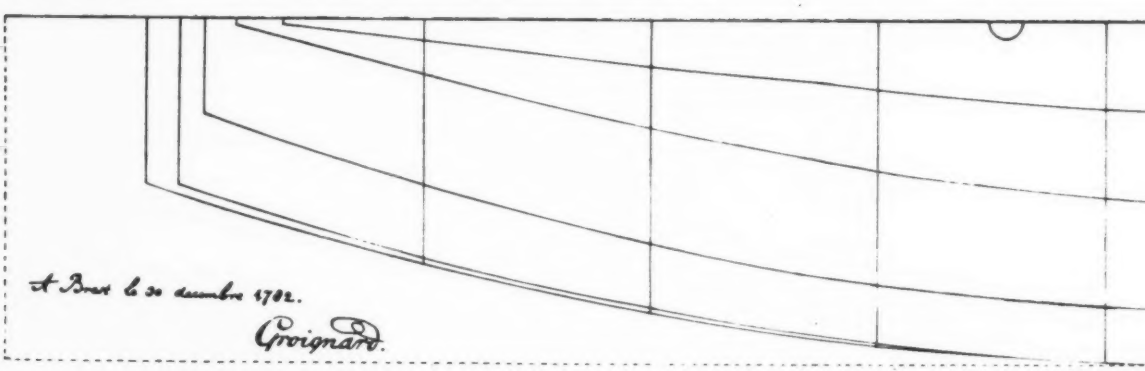


Proportions Principales.

Longueur au dehors de l'Etrave au dehors de l'Etambot	66	pieds pouces
Longueur au milieu du dehors des Membres	22	6
Elancement de l'Etrave	3	.
Quête de l'Etambot	5	6
Longueur de la Quille	57	4
Creux sur maille à vaux [illegible] du milieu compté	12	.

Echelle de 22 pieds Hollandois.





A Brest le 20 decembre 1702.

Groignard.

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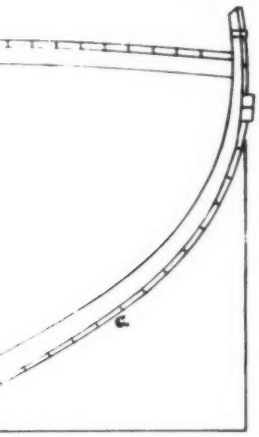
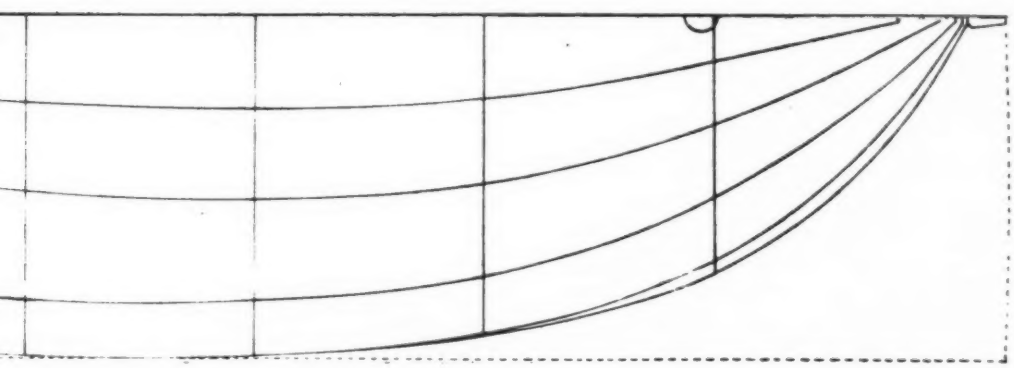


Note: This is not a model of the lugger covered in this article.



Model of a Lugger at Maritime Museum "Prins Hendrik" in Rotterdam

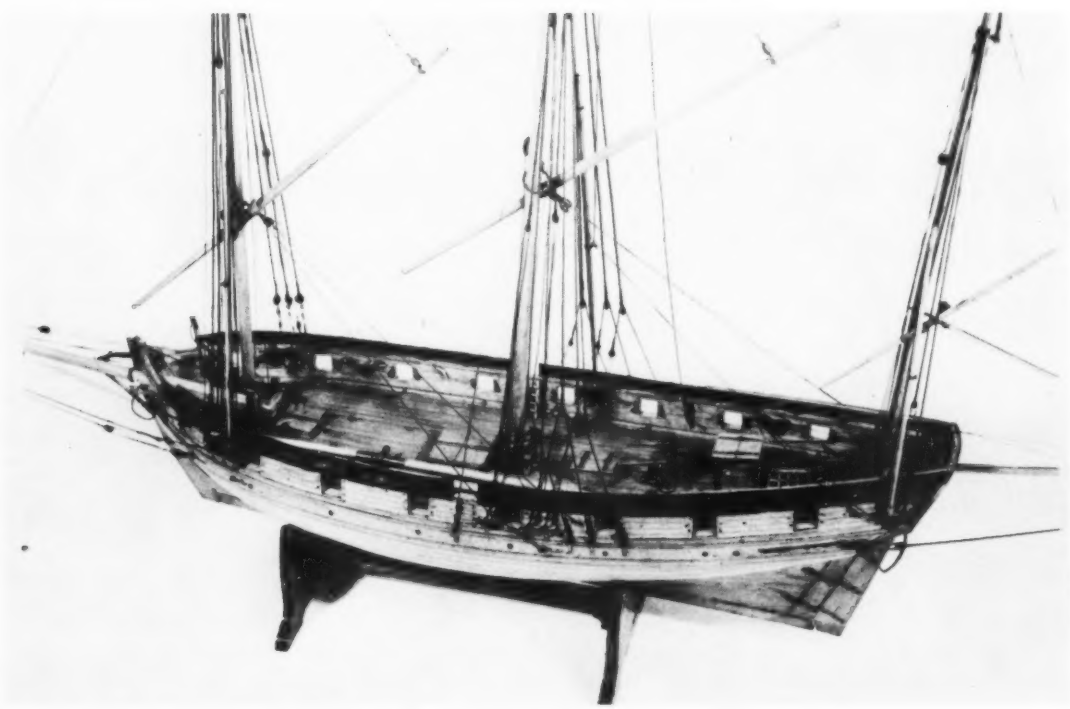
Foto No. M 204 - Reproduced under special permission of copyright owner

Foto No. M 204B - Reproduced under special permission of copyright owner

This model of a Lugger was presented to the Maritime Museum "Prins Hendrik" in 1858. Nothing is known of its previous history nor what vessel it might represent.

Foto No. M 204 C (above)

Foto No. M 204 D (below)



Museum voor Land en Volkenkunde en Maritiem Museum «Prins Hendrik"
Willemskade 25, Rotterdam, The Netherlands

THE MAYFLOWER PROJECT

By John Lang, N.R.G., M.S.N.R.

This undertaking has two separate features. The first, the building of a full-size replica of the MAYFLOWER as a chosen symbol of the common heritage of the English speaking peoples, and the other, the establishment of the "Mayflower Trust" to be founded with the revenues, such as exhibition fees, to establish scholarships t for study and to exchange visits between the two countries.

A non-profit company "Project Mayflower Ltd." was formed in Britain and has been working in co-operation with "Plimouth Plantation Inc." in Plymough, Massachusetts to carry out the project. Plimouth Plantation is rebuilding the original Pilgrim settlement and its governors have made available to the project, their designs for a reconstruction of the MAYFLOWER. After many years of research, a scale model of the hull was fabricated and flown to England where shipbuilders added the missing spars and rigging details.

The full ship is being built with British subscriptions and will be sailed across the Atlantic for presentation to the people of the United States. The Plantation has undertaken to provide a permanent berth for the MAYFLOWER and to maintain her thereafter.

The building began on 4th of July 1955 at the yard of Messrs J. W. and A.Upham at Brixham, Devon who have been building wooden vessels for more than 150 years. The basic designs were the work of Mr. William A. Baker, naval architect to the Bethlehem Steel Corporation (Boston, Mass.) and a distinguished authority on the history of ships of that period. The builders have also carried out extensive researches along complementary lines.

The completed MAYFLOWER will be of 183 tons by the rule of 1583, some 90 feet long and 26 feet in the beam. She will be barque rigged and draw approximately 11 feet. The keep was laid formally on July 28th with a simple civic ceremony and benediction. During her building, thirty-five shipwrights, riggers and carpenters were employed at various stages of construction. Her crew will be limited to 21 as on the original and there will be 30 passengers, including William Brewster, the twelfth generation direct descendant of Elder Brewster.

The cost of the Mayflower project has been estimated at £100,000 ($280,000). Sufficient funds have been made available for the preliminary work and to start building. Indications of support to date appear to be adequate for the immediate future. Expenditure, apart from building, will include victualling, supplies, insurance and essential administration. Plans have also been made to raise funds by individual subscription and enlisting the support of industry and commerce. Revenues from films and books of her journey, together with exhibition fees at various ports of call have been anticipated to cover the cost with some remainder to go to the Trust.

The present schedule calls for launching the MAYFLOWER in February 1956. After fitting out and trial runs, she will be expected to retrace her historic journey starting from London, calling at Southampton, Dartmouth and Plymouth. While visiting these ports, it is expected that the civic authorities will hold special ceremonies to wish her God-speed. The voyage is expected to take considerably less than the two months of the Pilgrim Fathers, but will be unaided by modern devices excepting the radio required by law.

Arriving off Cape Cod, her passengers and crew (in 17th century costume) will re-enact the signing of the Mayflower Compact. The ship will then continue the voyage to Plymouth, Massachusetts. Subsequent voyages include the Eastern seaboard cities and a voyage up the St. Lawrence to cities around the Great Lakes. After this long journey is over, she will find a permanent resting place where the Pilgrim Fathers made their home.

BOOK REVIEWS

SAILING SHIP MODELS, by R. Morton Nance, published by John de Graff, Inc., 64 West 23rd St., New York 10, New York. Priced at $7.50 and is a second edition print.

Mr. Nance has written this book for persons primarily interested in Nautical Research as well as for the Ship Model Builder. The major part of the book contains many excellent illustrations of ship models, mainly photographs taken by the author of many of the world's foremost examples of the art of Ship Modelling. The author includes photographs of models of "Church Ships", ornately carved British Admiralty Models of the 17th and 18th century, models from French, Dutch and German museums and lastly models from the famous Cuckfield Park Collection, better known as the Henry Huddleston Roger's Collection located at the U. S. Naval Academy, Annapolis, Maryland. Many of the photographs are of close-up shots of various models showing the details of the rigging and the designs of the carving for which many of these models are famous. These photographs should prove to be of great value to the model builder. Mr. Nance also includes, along with the photographs, a short descriptive paragraph giving a bit of the history and pointing out interesting details on each of the models.

The first forty-nine pages of the book deal with the growth of the Ship-Modellers Art and the development of Square Rigged Ships. In these pages he traces ship modelling through the ages, telling of the Egyptian models found in the tombs of the Kings, of the "Church Ship" models and finally of the Dutch, English and French models of the 17th and 18th century. He also gives the reader a detailed account of the history of the Square Rigged Ship, from the period of the ancient Egyptian civilization up to the period of the Clipper Ship. In his description of the "Square Riggers" he also includes the history and development of the stern galleys.

The last chapter of the book contains a compilation, by country, of the various museums with notable displays of ship models, including the types of models on display at each museum.

The book is of great value to the ship-modeller. However, the author, being a romantic, uses a rather flowery, difficult-to-read style which somewhat detracts from the excellent information contained in this book. The book is worth obtaining, however, if only for its superb photographs.

Reviewed by Walter C. De Genring

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YOUNG SEA OFFICER'S SHEET ANCHOR, by Darcy Lever, published by Edward W. Sweetman, 1 Broadway, New York 4, New York. Priced at $10.00 per copy.

The full title of this monumental work is "The Young Officer's Sheet Anchor - or - A Key to the Leading of Rigging and to Practical Seamanship", a quite lengthy one to be sure, but one that certainly covers the subject matter adequately. This particular publication is a reprint of the well known 1819 Second Edition and the publisher Edward W. Sweetman has produced a splendid example of printing by the photolithographic process. All of the illustrations are clear and exact and the text is also equally well presented. It is evident that great care must have been exercised in the preparation of the reprint.

The work itself is a concise cyclopedia covering the various arts of seamanship as practiced in the late 18th and early 19th centuries. The author divided his presentation into several categories, namely: (a) Rigging and Sails, and (b) Seamanship. His method of approach in both instances was to start with simple elements and then progress accordingly to more difficult and involved subjects. It would appear he did not wish his readers to become involved with too much text as each page of instruction is matched with a corresponding full page of detailed drawings.

This is certainly an historic "do it yourself" project that not only has all of the answers immediately at hand but also a concise nautical dictionary of sea terms included for good measure.

Ship model builders and nautical research students who have never had an opportunity to examine one of these rigging and seamanship guides heretofore, should take advantage of present availability for the reference shelf. This particular work has been reproduced many times in the past and as each edition became exhausted, the resale value soared until another edition appeared. Once more, the work is available at a moderate, though substantial, investment and is worthy of consideration.

Review by J. W. Harbin, Jr.

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WRECKS IN TASMANIAN WATERS, by Captain Harry O'May, NRG, and published by D. E. Wilkinson, acting Government Printer, Tasmania.

A copy of this work was received from the author and contained the following inscription on the frontpiece "Please accept with greetings and good wishes to all Yanks of the N.R.G. from Harry O'May of "Down Under".

This is a compilation of ships wrecked in Tasmania waters from 1797 to 1950 arranged by year. Although it is not so indicated, the text appears to follow contemporary accounts of each loss and considerable local color has been included to give life and meaning to what otherwise might be a dull statistical review.

This rates as "well done" Captain O'May and we wish you every success in raising funds from the sale of this work to finance a museum in memory of shipbuilding and seafaring pioneers.

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BOATS OF THE UNITED STATES NAVY, available at the Government Printing Office for 60 cents.

This is in the nature of a catalogue containing the principal characteristics of most of the current boats and small craft of the U. S. Navy. There are 47 sheets of profile and deckview plans drawn to a uniform scale of 1/8th inch equals 1 foot. There are no body plans included, but there is sufficient detail included in the two views of each available craft to interest anyone studying contemporary naval boats. The work also includes seven different inflatable boats drawn to a scale of 1/4 inch to the foot.

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HISTORY AND RESTORATION OF THE SHIP "BALCLUTHA", by William N. Mills, N.R.G.

Originally, this was a report presented at a meeting of the Northern California Section of the Society of Naval Architects & Marine Engineers in San Francisco. It is a survey of the vessel prior to restoration and along with a history of the ship continues the story of reconstruction to the present. Illustrations are included and a sail plan that did not appear in this JOURNAL's series completes the picture. The San Francisco Maritime Museum is handling sales at 25 cents per copy. It is suggested that a little more be added to cover cost of their splendid color postcard series (3) of the BALCLUTHA.

BULLETIN of The THAMES SHIPLOVERS SOCIETY - WINTER 1955-1956, Vol. 6, No. 2

The Hon.Editor G. W. Howe has presented herewith another resume of activities of the Society ranging from a report on the Royal National Lifeboat Institute, an eye witness account of "Round The Horn in Sail", the transportation of oil in tankers, the Union-Castle Line, description of a Brazilian "Jangada",book reports and so on. Several discussions that were noteworthy were those devoted to use of scale figurines on models and the rise of use of kit models in the construction of competition exhibition models. A very interesting report throughout.

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TRADE NOTES

Frank Mittermeier, Importer, 3577 East Tremont Avenue, New York 65, New York - has an impressive collection of imported carving tools for cabinet makers and gun smiths. Prices appear to be moderate and in keeping with quality merchandise. Catalogue available.

The Riverside Mfg. Co. Inc., 427 West Rock Avenue, New Haven, Connecticut - has taken over the manufacture of the MIDGET UNIVERSAL formerly produced by W. C. Roemer, Catalogue and price list now available.

Metronic Minature Precision Lathes will shortly be available through John Shedd of Model Shipways, Bogota, New Jersey.

The NAUTICAL RESEARCH GUILD has issued a microfilm edition of all of its publications through August 1955. Publications filmed include the Secretary's Monthly Letter Vol. 1 1948-1955 and Nautical Research Journal Vols. 1-7 (1949-1955) through July-August issue. A positive copy of this material may be purchased for $16 from Mr. Peter Scott, Micro Reproduction Service, Massachusetts Institute of Technology, Cambridge 39, Massachusetts.

QUERIES

26-1 from Roy Rogers, Brooklyn, New York - - The terms "Framed", "Built-Up", "Plank and Frame" and "Planked" are used to describe ship models that are somewhat according to actual shipbuilding practice, in differentiation from models with solid hulls. However, these terms are used interchangeably and none are completely descriptive, since at one time they may refer to a model fully framed with all internal wood to scale in imitation of actual ship construction, and at another time refer to a model with a very simplified framework used solely to give the correct external shape. At this late date can anyone suggest more exact terminology for these variations that will avoid present confusion.

26-2, from Dennis Gilchrist, Grand Haven, Michigan - Can anyone furnish information on Great Lakes "whaleback" ships and possibly a source of plans?

26-3, from Charles E. Gruenewald, St. Louis, Missouri - Where can I obtain a copy of "de Halve Maen" by Petrejus and "Der Schiffsmodellbauer Erzahlt" by Emil G. Bai?

26-4, from Albert C. Wagner, College Park, Maryland - I would appreciate any leads to plans, pictures, history etc. pertaining to the ship, later re-rigged as a bark SEMINOLE, 1439 tons, built by Maxon, Fish & Co., Mystic, Connecticut for Lawrence Giles of New York.

26-5, from Albert C. Wagner - Is there any information (aside from Starbuck) on the whaling bark CORA of New Bedford, 1831 to 1845? Also, is there any information as to details of the figurehead of the Philadelphia packet ship SHACKAMAXON?

26-6, from F. Sheldon Drew, Brockton, Massachusetts - Can anyone advise as to the spar dimensions of the Privateer LYNX built by Thomas Kent of Baltimore, Maryland - or quote the rule by which such ships were masted as it is known their lower masts were more lofty than merchantmen of the same period.

Response to Y5-3 by J. J. Flynn relative to use of a heavy length of rope lashed to the main rail etc...Mr. William Tobin suggests it is the remains of a netting which was stretched on the head of some ships and which may be seen in old engravings. - Mr.A. C. Wagner advised - I have a couple of pictures of early small ships believed to be Dutch which show the small bower anchor carried with the stock vertical at the outer end of the cathead and the arm resting with one fluke just inside the rail forward between the cathead and the figurehead, so that the cathead, rail and shank form a triangle. One shows a padding of what appears to be old hawser atop the rail to protect it from the anchor.

ADAMS, RAYMOND L., House 56, Village 1, Sheffield, Alabama - is presently interested in plans and specifications of all U.S.N. vessels named SARATOGA from 1779 to date. Mr. Adams is a model builder and has promised something interesting on SARATOGA I.

BELKIN, Mrs. BARBARA, 60-07 251 Street, Little Neck 62, New York - describes herself as the busy wife of Dr. Herman Belkin and mother of two young children. She has been a ship model builder for a number of years and prefers the 16th to 18th centuries for study.

BENJAMIN, JOHN J., Stoneboat Road, Westport, Connecticut - is a naval architect and writer in the marine field. He is interested in naval craft of the 1812 period and also outstanding shipwrights of the same period - particularly those who were active in the Great Lakes campaigns.

BRASS, ALVIN, 2285 Ocean Avenue, Brooklyn, 29, New York - is a Technical Illustrator with CBS-Columbia and is most active in building ship models of the 18th and 19th centuries. His present research is in connection with the CHARLES MORGAN.

BRITTON, Lt. Col. LEWIS C., 4737 24th Road North, Arlington 7, Virginia - has been a ship model builder for many years. He has been closely associated with the Philadelphia and Washington Ship Model Societies and during a recent tour of duty in England became acquainted with many of the leading authorities on maritime research. Some of his minature models have been given excellent reviews both here and abroad.

CLARK, S. MILTON, 30 Carolin Road, Upper Montclair, New Jersey - is Secretary of the Ship Lore and Model Club of Upper Montclair and is a model builder of naval sailing vessels (U.S.) from Colonial times through 1890. He describes himself as a retired naval architect.

DAVIS, Lt. Cmdr. GEORGE J., Apt. D-2, Perry Circle, Annapolis, Maryland - is presently an instructor of naval ordnance at the Naval Academy. He describes his interests as current naval affairs and history from 1775 to present, and is also a model builder of the "built-up" school preferring the 1760-1815 period.

DE GENRING, Jr., WALTER C., Security Group, U.S.N. Radio Station (R), Cheltenham, Maryland - is a model builder and book collector of material relative to 1600-1840 period. While waiting a more permanent assignment, Mr. De Genring has been catching up with his readings on sundry nautical matters.

ECKSTEIN, HARRY, 33 William Street, Mt. Vernon, New York - needs no introduction to the older members of N.R.G., but for the benefit of a few - he is a shipmodeler and student of the 18th and 19th centuries of nautical developments. We are very happy to have him back with us.

FERGUSON, JAMES C., 629 - 15th Avenue, SE, Minneapolis 14, Minnesota - advises that he is modelbuilder especially interested in sailing vessels of the 17th and 18th centuries and up to the end of the War of 1812.

HAWKS, CARL H., 12706 Bromont Avenue, San Fernando, California - is an engineer and prefers to model naval sailing vessels of the 18th and early 19th centuries. He indicates other very interesting interests such as bow hunting, music, orchid culture and lapidary of precious stones.

IVES, ARTHUR P., 5039th Air Installation Sqdn. - Engr. Sec., APO 942, Seattle Washington - is most interested in small boat architecture and builds models to test his designs. Mr. Ives is in the same area as Mr. Jenkins and Mr. Smalley and it would not take many more members to have an N.R.G. Chapter in Alaska!

JOHNSON, Jr., Lt. Cmdr. CARL E., U.S. Naval Reserve Training Center, South Portland Maine - describes his activities as Commanding Officer of the indicated activity and model builder and student of contemporary maritime affairs. Period of interest 1951-56.

McCULLOUGH, JAMES S., 270 West 11 Street, New York 14, New York - is actively engaged as a deck officer. He spent several years in sail on east coast schooners and barkentines, and has also been a professional model builder for several well known museums and industries. Periods of interest - from 1800 to date.

McLELLAN, JAMES H. - (Home address) 299 Danforth Street, Portland, Maine - (Temporary) Hotel Laguna, Laguna Beach, California - describes himself as of the fourth generation of a Maine family of ship builders and owners. We expect that Mr. McLellen will be able to add to our collection of material on Maine built sailing craft.

MANDEL, EDGAR J., 748 Catalonia Avenue, Coral Gables, Florida - advises he is mostly interested in sailing ships built prior to 1700, and trans-Atlantic paddle steamers.

The NAUTICAL RESEARCH JOURNAL is published by members of the NAUTICAL RESEARCH GUILD. Membership dues are $5.00 per annum and include all issues of the Journal published during the year, plus index of the current volume, plus copy of the latest Membership Roster. New members receive the numbers which have been previously issued in the current year.

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ASSISTANT SECRETARY, Thomas Hornsby, 537 Boyer Road, Cheltenham, Pennsylvania
ASST.CHAIRMAN MEMBERSHIP COMMITTEE, F.J.Watson, Jr., 205 David Dr.A-1, Bryn Mawr,Pa.

THE SECRETARY'S REPORT TO MEMBERS OF THE NAUTICAL RESEARCH GUILD

This issue marks the commencement of another volume of our NAUTICAL RESEARCH JOURNAL that will be devoted to reports and observations from fellow members all over the World. Some minor changes have been accomplished in the preparation of this issue and further improvements will be made from time to time. There are some extremely interesting articles on hand for publication and more on the way. It would appear that another successful year is commencing and your Secretary hopes you will do your share to help during the coming months.

REPORT BY THE MEMBERSHIP COMMITTEE

It is with great satisfaction that we have closed the past year with substantial increases to the Membership Roster. However, in order for the Guild to continue to flourish and succeed in its mission, your Membership Chairman and Assistant invite all members to participate in this work. We have had excellent cooperation in the past from several fellow members and we could use even more help in this work. We wish that every member of the Guild would consider himself as a part of the Committee so as to assure wider coverage than heretofore. The Secretary will gladly supply Membership (application) Report blanks and sample copies of the JOURNAL when so requested.

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Introduction of New Members (continued)

SNEAD, Dr. THOMAS I.J., 1930 Sir Francis Drake Boulevard, P.O.Box 487, Fairfax, Marin County, California - carries his research efforts to both sail and steam and particularly from the 15th through the first half of the 19th centuries. We are looking forward to further information on his San Francisco ferry steamer with live steam vertical beam engine.

Roster Adjustments

ADAMSEN, WILLIAM J.R. - 15 Briarbrook Road, Ossining, New York
BOSTON, CARL - 4 Cedar Avenue, Cape May Point, New Jersey
BRITTON, WRIGHT - 210 South 43rd Street, Philadelphia 4, Pennsylvania
CAPUTO, CARMEN E. - 5107 South Newcastle Avenue, Chicago 38, Illinois
FOWLER, E. M. - (Home) 512 - 33rd Street, West Pal, Beach, Florida - (Temporary) Apt. 215, 1015 Rockbridge Avenue, Norfolk 8, Virginia
GREEN, FLOYD JACK - 1120 SW 139th - Apt. 204, Seattle 66, Washington
GILCHRIST, DENNIS - 609 Washington, Grand Haven, Michigan
JACKSON, ROBERT W. - 4326 W 36th Street, Minneapolis 16, Minnesota
LANGDON, CHARLES - 5729 Meade Avenue, San Diego, California
MILLIGAN, Jr.,WILLIAM F. - 1506 Sigmona Street, Falls Church, Virginia
MILLS, WILLIAM N. - 3471 Washington Street, San Francisco, California
MUSSER, THOMAS O. - 1240 Queens Road, Berkeley 8, California
NASH, ROBERT A. - 412 East Sierra Madre Boulevard, Sierre Madre, California
NICHOLS, Capt. ADOLPH E. - 660 NE 143rd Street, North Miami, Florida
WARDLE, BERNARD T. - 438 Park Road, Hockley, Birmingham 18, England